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01P15526US

PATENT APPLICATION
09/990,844

7

REMARKS

This Application has been carefully reviewed in light of the Office Action mailed March 29, 2005. At the time of the Office Action, Claims 1-21 were pending in this Application. Claims 1-4 are allowed. Claims 5-7, 11-14, and 16-21 were rejected. Claims 8-10, and 15 were objected to. Claims 13, 16 and 19 have been amended. Claim 15 has been canceled without prejudice. Applicants respectfully request reconsideration and favorable action in this case.

Rejections under 35 U.S.C. § 102

Claims 5, 6, 7, 11, and 12 were rejected by the Examiner under 35 U.S.C. §102(a) as being anticipated by U.S. Patent 6,813,744 issued to Mario Traeber ("Traeber"). Applicants respectfully traverse and submit the cited art does not teach all of the elements of the claimed embodiment of the invention.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1997). Furthermore, "the identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co. Ltd.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). Applicant respectfully submits that the cited art as anticipatory by the Examiner cannot anticipate the rejected Claims, because the cited art does not show all the elements of the present Claims.

Claims 5 and 11:

Applicants maintain their position that Traeber merely discloses the general principle of how a trellis calculation is performed. The Examiner stated that Traeber discloses the steps of Claims 5 and 11. Applicant respectfully disagrees. Traeber states the following in the paragraph cited by the Examiner:

Each path metric of a path leading to a specific state is composed of the path metric of a previous state in time and of the branch metric of the branch leading from this previous state to the specific state. This means that there is no need to determine and evaluate all the possible paths and path metrics in the

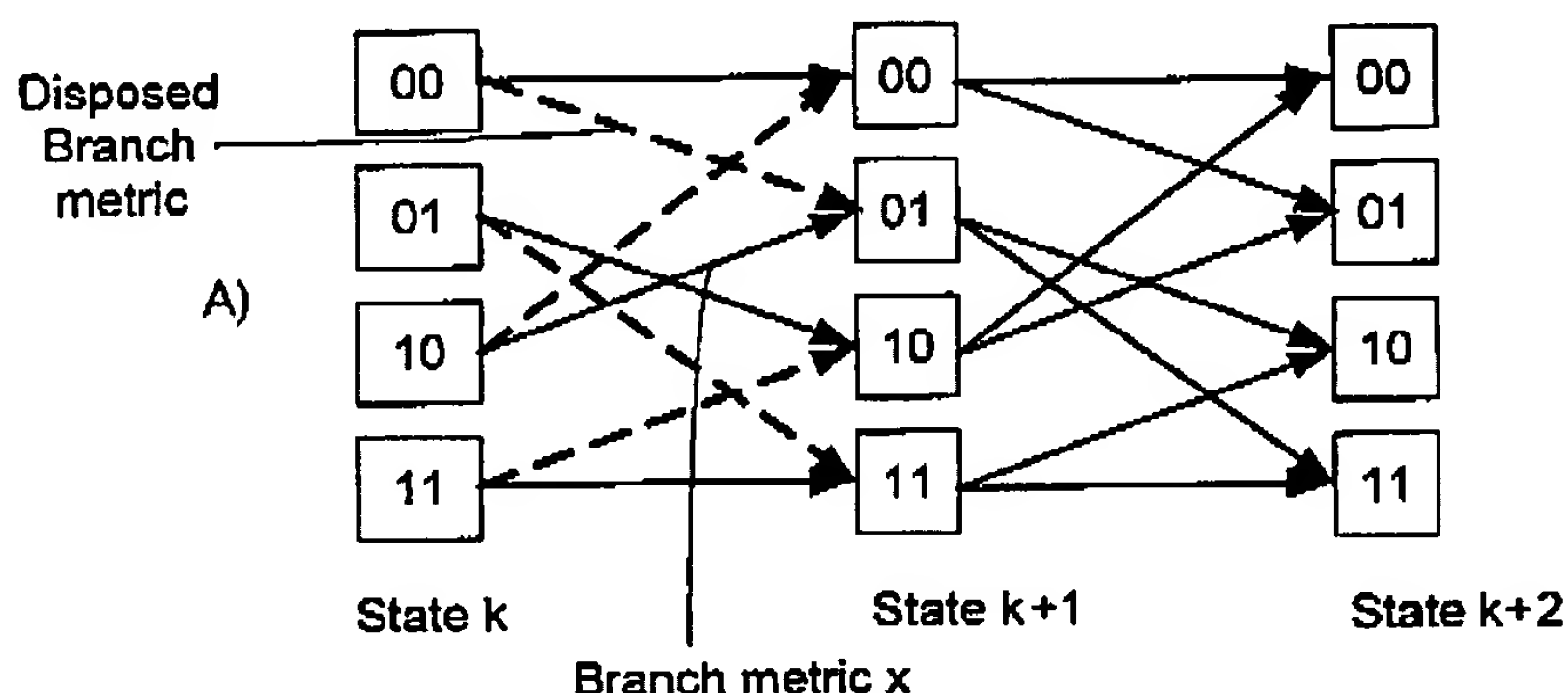
ATTORNEY DOCKET
01P15526US

PATENT APPLICATION
09/990,844

8

trellis diagram. Instead of this, that path which has the best path metric up to this time is determined for each state and for each time step in the trellis diagram only this path, which is referred to as the survivor path, and its path metric need be stored. All the other paths which lead to this state can be ignored. Accordingly, during each time step, there are a number of such survivor paths corresponding to the number of different states.

To illustrate the stated calculation method, Applicants provide for the following graphical representation A:



Traeber teaches that each path metric of a path leading to a specific state (e.g. State k+2) is composed of the path metric of a previous state in time (e.g., path metric "10" in state k) and of the branch metric (e.g., branch metric x) of the branch leading from this previous state (state k+1) to the specific state (State k+2). Traeber further teaches there is no need to determine and evaluate all the possible paths and path metrics in the trellis diagram. Instead of this, that path which has the best path metric up to this time is determined for each state and for each time step in the trellis diagram. Only this path, which is referred to as the survivor path, and its path metric need be stored. Thus, in the graphical example shown above, only one of each branch metric and, thus, only one of each resulting path metrics ("00", "01", "10", "11") is kept. The dotted lines show, for example, the branch metrics which are lower than the respective other branch metrics leading to the same path metric in a state and can, therefore, be discarded.

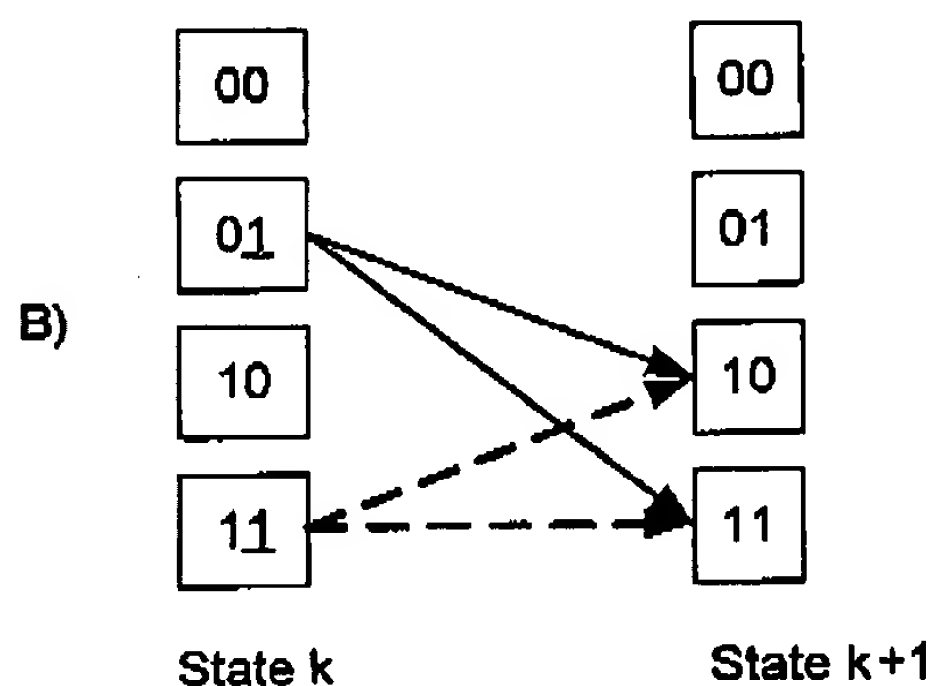
ATTORNEY DOCKET
01P15526US

PATENT APPLICATION
09/990,844

9

However, from each of the path metrics in state $k+1$, new calculations for all possible branch metrics must be made to determine again the surviving paths. Traeber merely teaches the obvious reduction, in the above example, from 8 path metrics (each path metric "00", "01", "10", and "11" has two values including one branch metric, respectively) to 4 path metrics. Nevertheless, in each time step, 8 branch metric calculations must be determined. With a higher number of path metrics, such as shown, for example, in Figure 5 of the present application, the number of calculations increases significantly.

Figure B explains the principle as included in the subject matter of Claims 5 and 11:



According to Claim 5 and 11 of the present application, in the first step, the value of a previous symbol from a sequence of symbols is determined. As explained previously, a symbol is defined as, for example, one of the binary values in a sequence (The term path metric in Traeber defines for example two sequential symbols). In the example B shown above, the value 1 in state k is determined to be the dominant value. Thus, all states in which the second and, thus, latest, symbol equals "1" are selected. Then, according to the following step, only path metrics (in Traeber defined as branch metrics) originating from those states, namely from "01" and from "11" are calculated. Claim 5 and 11 define, thus, a different approach than Traeger. Claim 5 and 11 include, thus, the very significant first steps as explained in the last responses to office action which is necessary to significantly reduce the calculations within a trellis.

ATTORNEY DOCKET
01P15526US

PATENT APPLICATION
09/990,844

10

Applicants respectfully submit that the dependent Claims 6-10, and 12 are allowable at least to the extent of the independent Claim to which they refer, respectively. Thus, Applicants respectfully request reconsideration and allowance of the dependent Claims. Applicants reserve the right to make further arguments regarding the Examiner's rejections under 35 U.S.C. §103(a), if necessary, and do not concede that the Examiner's proposed combinations are proper.

Allowable Subject Matter

Applicants appreciate Examiner's indication that Claims 8-10, and 15 would be allowable if rewritten in independent form to include all of the limitations of the base claim and any intervening claims. However, as explained above, Applicants believe that claims 5, 6, 7, 11, and 12 are allowable over the prior art.

With respect to Claims 13 and 19, Applicants amended to include the limitations of allowable claim 15 into Claims 13 and 19. To this end, Applicants amended claims 13 and 19 to include a tap-selectable Viterbi equalizer according to Claim 13. Applicants respectfully submit that the dependent Claims 14, 16-18, and 20-21 are allowable at least to the extent of the independent Claim to which they refer, respectively. Thus, Applicants respectfully request reconsideration and allowance of the dependent Claims. Applicants reserve the right to make further arguments regarding the Examiner's rejections under 35 U.S.C. §103(a), if necessary, and do not concede that the Examiner's proposed combinations are proper.

ATTORNEY DOCKET
01P15526US

PATENT APPLICATION
09/990,844

11

CONCLUSION

Applicants have made an earnest effort to place this case in condition for allowance in light of the amendments and remarks set forth above. Applicants respectfully request reconsideration of the claims as amended.

Applicants believe there are no fees due at this time, however, the Commissioner is hereby authorized to charge any fees necessary or credit any overpayment to Deposit Account No. 19-2179.

If there are any matters concerning this Application that may be cleared up in a telephone conversation, please contact Anand Sethuraman at the number below.

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Respectfully submitted,



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